Region 1 FY 2013 Invasive Species Control Program Proposal Format

Refuge/complex name: McNary NWR/Mid-Columbia River NWRC

Project title: McNary Slough Rough Fish Eradication

Total amount requested: $40,000

Project description:

Target Invasive Species:	Common Carp (*Cyprinus carpio)* and catfish (primarily *Ameriurus* spp.)
Infested acres:	492 acres
Treatment acres:	492 acres

The purpose of the proposed action is to enhance environmental conditions in the McNary Slough by reducing the population of rough fish, including common carp (*Cyprinus carpio*) and bullheads (*Ameriurus* spp.). Sampling conducted in 2012 found that three of the four pools of the McNary Sloughs are effectively denuded of any submerged aquatic vegetation and all four pools show high turbidity, a common symptom of carp infestation. Visual observations of all four pools show high levels of carp presence. The goal of the proposed action is to reduce the current population of rough fish by a minimum of 99 percent and to maintain the population at or below this reduced level. In meeting the goal of elimination of rough fish in at least one of the McNary Sloughs, the Refuge is planning on a rotenone treatment to eradicate all fish from Sloughs 1-4 in fall 2013.

Distinct project with well-defined objectives (10 points):
The McNary NWR's typical IPM treatments address upland and wetland invasive plants annually. The Refuge has not conducted any control activities of invasive fish since the late 1990s. Monitoring of water quality metrics and aquatic vegetation provided strong evidence of the negative impacts of rough fish to these aquatic habitats, and provided a compelling explanation for the long-term decline in use of the Slough by wintering waterfowl. The Refuge is seeking to reduce these habitat impacts immediately and is pursuing funding to treat all four pools of the Slough in 2013.

Comment [BFW1]: I would have liked to see this expanded on in the biological benefits section. Describe this long-term decline. What is the historical potential for supporting waterfowl in McNary Slough and what is it currently?

Potential for maximum control (10 points):
The four pools of the McNary Slough are fairly isolated from surrounding water; inflow into the Slough is through groundwater, and outflow to the Columbia River is restricted to a single outlet structure. This structure is protected against fry passage by fish screens, and additional fish screens and rock barriers will be installed to prevent carp larvae from re-entering the system from the Columbia River. Past rotenone treatments have been very effective, but reintroduction and infestation have occurred at varying rates. The most likely cause for failure of previous attempts was that the connected pools of the Slough were never treated at a single time, leading to refugia for rough fish within the Slough itself. The Refuge is proposing to treat all four pools of the Slough in fall 2013; control of rough fish will be immediate. Long term effectiveness depends on survivorship of rough fish through the treatment, reinvasion from external sources, and reproductive rate of any survivors or immigrants. The Refuge is examining options for introduction of fish species that can prey on small carp and carp eggs to provide a biological control to maintain the effectiveness of the treatment for the long term.

Comment [BFW2]: I'd like to know more about this to give me greater confidence that re-entry from external sources is reduced to the maximum extent possible.

Biological benefit to priority species or BIDEH (10 points):
The 1953 General Plan of the McNary Project identified areas of land "for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon." These lands are encompassed within the current McNary NWR boundaries and include the McNary Slough. Language from the general

plan states specifically: “the slough will provide area for waterfowl nesting, resting and feeding” and “extensive stands of aquatic vegetation will develop in the shallow areas.”

Eradication of the primary (invasive) degrading component of the project area will enhance biological integrity by releasing the natural aquatic vegetation from heavy levels of herbivory. The resultant increase in primary production will stimulate recovery of aquatic invertebrates. Anecdotal comments from past managers who have performed rotenone treatments on McNary Slough characterize the vegetative response as “very fast” and “very successful.” The anticipated improvement in water quality, vegetative structure, and invertebrate populations to a system more like the native community will provide improved feeding opportunities for waterfowl during crucial breeding, wintering, and migratory periods.

Utilizes the principles of Integrated Pest Management (5 points):
Options for successful treatment of carp infested waters are fairly limited. The Refuge will be using a chemical treatment (rotenone) as the initial method of control. The Refuge is also exploring stocking of fish that would prey on carp eggs and young to provide a long term biological control for these fish species. To prevent further invasion and movement of carp after treatment, we will install barriers (fish screens, rock dams) internally (between pools) and between the pools and outside waters to prevent re-invasion. Success of treatments and the potential need for future treatments will be determined by metrics of water and habitat quality (water clarity, vegetation presence).

Monitoring to document and evaluate project success (5 points):
In those water bodies targeted for rotenone application, the proposed project would establish long-term water metrics (water temperature and light penetration variation), water clarity, and submerged aquatic vegetation (SAV) community structures. Zooplankton community structures will also be sampled and monitored in the targeted water bodies. Refuge volunteers have conducted waterfowl use of the sloughs before treatment and will continue monitoring after treatment to provide a measure of waterfowl response to the treatment.

Involves matching funds (*not required*) or in-kind support from partners (5 points):
Treatment efforts on the Slough will be directed by personnel from Washington Department of Fish and Wildlife members who will provide expertise on rotenone application, personnel, and boats necessary for rotenone application. Prescribed fire activities to reduce phragmites density prior to rotenone application will involve participation from our partnering fire districts and agencies. Youth Conservation Corps (YCC) members will be involved in the project through conducting monitoring of SAV presence and abundance and water clarity. As noted above, refuge volunteers will conduct waterfowl use surveys. Waterfowl monitoring on the pools is conducted by volunteers from the Lower Columbia Basin Audubon Society.

Budget:
$40,000 – This will provide the additional funding for the purchase of sufficient rotenone product to treat Pools 1 and 2. The Refuge has already committed to the manpower and rotenone costs for treatment of Pools 3 and 4. If funded for the additional rotenone purchase, the Refuge will supply all manpower, equipment, and funds necessary to treat the additional pools and conduct follow-up monitoring.

Comment [BFW3]: Where will funding for the control structures come from and when will they be installed?